# USAID ENERGY ASSISTANCE to

## Central and Eastern Europe and the New Independent States of the Former Soviet Union

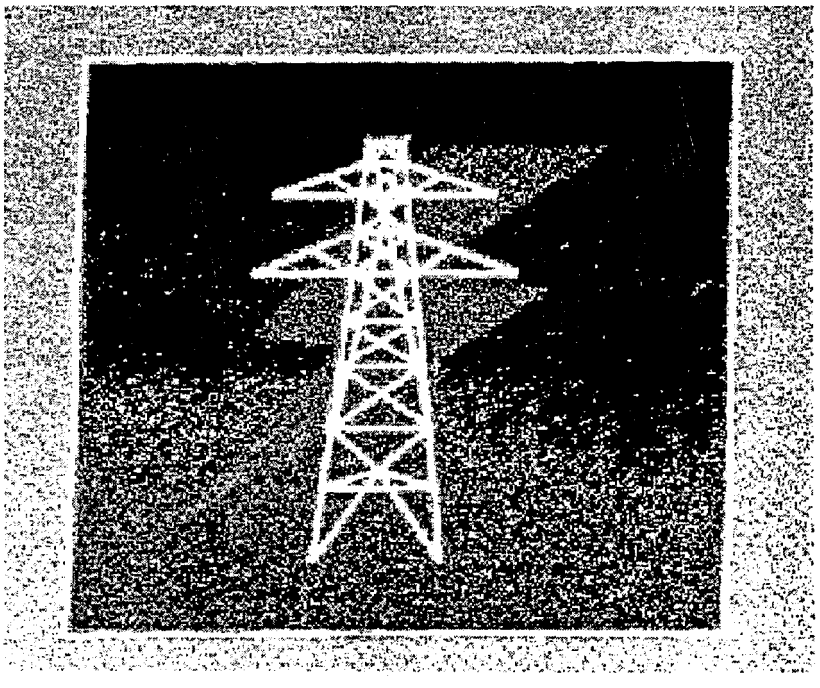
# ANNUAL REPORT

## 1995

Energy and Infrastructure Division

Bureau for Europe and New Independent States

US Agency for International Development



# USAID ENERGY ASSISTANCE
# to Central and Eastern Europe and the New Independent States of the Former Soviet Union
# 1995 ANNUAL REPORT
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# The Year 1995 in Perspective

USAID energy assistance programs continued in 1995 to play an important role in the transition of the countries of Central and Eastern Europe (CEE) and the former Soviet Union (the New Independent States - NIS) to market economies. An external evaluation of the program in the NIS by a team from Booz-Allen Hamilton helped to document the results of past programs and identify key issues of focus and impact as budgetary resources are reduced.

The principal foci of the program were on (1) restructuring the electric power sector; (2) energy efficiency, and (3) nuclear safety. Nevertheless, oil and gas activities were of key importance in Russia, Romania, and Georgia.

The year 1995 was generally marked by limited progress in the reform of the energy sectors of the CEE and NIS countries. Among the most notable developments were: (1) the decisions by President Kuchma of Ukraine to implement a comprehensive electric power restructuring program and to conclude a framework agreement with the G-7 countries on the closure of Chernobyl by the year 2000; (2) the conclusion ahead of schedule of the AC interconnection between the Centrel countries (Poland, Hungary, Czech Republic and Slovak Republic) and former East Germany with the UCPTE System of Western Europe; (3) privatization of electric and gas assets to strategic investors in Hungary; and (4) completion of the Joint Electric Power Alternatives Study (JEPAS) in Russia.

Although energy company corporatization and commercialization programs continued in most countries, progress in privatization was evident in only a few countries. In this context, the decision in Hungary to implement a wide-scale privatization of power, gas, and oil companies, was clearly the highlight of the year. Hungary had been the first country in late 1994 to enact an electric and gas utility law suited to a market economy. The absence of a similar legal and regulatory framework in most other countries has clearly been an obstacle to developing more competitive, open and economically transparent energy utility systems.

In the oil and gas sector, the process of privatization of petroleum product distribution companies continued throughout the region, particularly in Central and Eastern Europe. Progress in privatizing and rationalizing refining capacity remained discouragingly slow. The Czech government finally decided to proceed with the privatization of the Litvinov and Kralupy refineries and negotiated an agreement for strategic investment from a international consortium including Conoco.

Foreign investment in oil and gas exploration and development, although critical to reducing the dependence of most countries in the region on imported oil and gas, remained focused on Russia, Kazakhstan, Azerbaijan, and Turkmenistan. Although several new agreements were signed in Russia, the production-sharing agreement legislation, which was passed by both houses and signed by President Yeltsin in late December, still contains provisions which are considered by most foreign companies to be problematic. Communist gains in year-end elections further clouded the picture for oil companies considering large exploration and production investments.

A key positive event in the development of schemes for the export of the large oil resources from the Central Asian Republics was the decision of the Azerbaijan International Oil Consortium (AIOC) to pursue routes through both Russia and Georgia for the export of "early oil" from Azerbaijan. However, no acceptable agreement was developed on the construction of a pipeline to bring Tengizcheveroil output from the Caspian Sea to the Black Sea. The potential participation of Russia's Lukoil in the Caspian Sea Pipeline Consortium at end-year raised possibilities of movement on this critical issue.

Nuclear safety remained a key topic of the G-7 nations and some progress was made with Russia as well as with Ukraine, as noted above, in developing a framework, including an increased role for the nuclear regulatory authorities, in safety assessment and licensing decisions. The Nuclear Safety Account at the European Bank for Reconstruction and Development, approved two grants for safety upgrades in Russia and the Joint US-Russian Electric Power Alternatives Study developed analysis showing that early decommissioning was more economical than safety upgrades to some of the older reactors.

Two nuclear events in 1995 were troubling for G-7 officials. First, the Bulgarians decided to reopen Kozloduy Unit #1 despite strong G-7 concerns about embrittlement of the reactor vessel. Secondly, the Armenians, with Russian assistance, began powering up one unit of the Medzamor VVER-440-230 despite Western objections. The G-7 nations agreed with President Yeltsin on a proposal at Halifax for a nuclear summit in 1996 that would include issues of the safety of civilian nuclear power plants.

The following sections cover these and other development in 1995 and the role of USAID assistance in specific countries. I want to thank the US companies, associations, NGOs and other USG agencies that played a part in the development and implementation of USAID assistance programs.

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# Latvia & Lithuania



## LATVIA

### Developments in 1995

Latvia's electric and gas companies continued to face financial problems due to poor collections. The year was also marked by the sudden death of Gunnar Koemecs, the head of Latvenergo and a champion of reform and Baltic regional energy cooperation.

Problems with gas imports from Russia were less pronounced than in past years. Plans for major increases in gas storage have not yet materialized.

### USAID Energy Assistance Program

The centerpiece of the USAID energy program has been the utility partnership between Central Vermont Public Service and Latvenergo. A key achievement of this partnership has been the establishment of a customer service program and regional customer service centers. This work has been linked with exposure to a demand-side management program (DSM), which is expected to be a focus in the future under the Electrotek contract. The customer service and DSM programs can help Latvenergo reduce the substantial arrears from non-payments. Given its close relationship with Latvenergo, Central Vermont has been invited on several occasions to participate on an international utility advisory group that has shared views and experience on tariff and other issues.

## LITHUANIA

### Developments in 1995

The minor privatization of energy sector assets represented one of the most significant energy events of the year in Lithuania. In addition, the Parliament surprisingly passed an energy law establishing a separate Energy Price Commission. The World Bank's Power Loan finally became effective with the meeting of international financial accounting standards by the Lithuanian State Power System (LSPS). The Government continued to talk about its desire to replace the Ignalina RBMK Nuclear Plant with a Western nuclear power plant, but actually did little to support this. Since the costs of imported oil for Electrenai and other fuel-oil fired plants is believed to be unsustainable in both the near and longer-term, the Prime Minister indicated in October that the government would present a specific proposal by the end of the year. Several Western companies are interested in investing in a plant that would supply Western Europe. No major transmission links currently connect Lithuania and Poland.

### USAID Energy Assistance Program

The USAID energy program in Lithuania in 1995 began working with the new Pricing Commission on electricity, gas, and district heating tariff guidelines. A program was also developed to assist the LSPS to address its accounts receivables problems.

Bechtel and Arthur Andersen completed a task which helped to develop financial accounting support systems at the LSPS to meet a World Bank loan conditionality.

Demand-side management activity with the Kaunas Distribution Company was delayed due to procuremen problems but equipment for the pilo demonstration has been approvec and should be delivered in 1996.

The Alabama Power-LSPS partnership went into full swing ir 1995 with management exchange programs in customer service financial, and distribution systems operations .

The major element of the USAI program was assistance in nuclea safety. USAID grant funds are bein used in the short-term improvemer program under the Nuclear Safet Account at the European Bank fo Reconstruction and Developmer (EBRD), and for continued DOE an NRC assistance to Ignalina and t Vatesi, the regulatory body fo emergency safety systems, diagnosti systems hardware and software, an training to operators and regulators o various safety topics.

The Baltic countries have recentl started to coordinate the planning an operation of their power systems an to develop autonomous plannin capabilities under the Baltic Region Energy Planning Project (BREP). I early 1995, all three utilitie Lithuanian Power System, Latvenerg and Eesti Energia, establishe strategic planing departments. USAI provided each of the pow companies with load forecastin integrated resource plannin production costing, and transmissic planning models, training, and limite technical support.

# Poland



## Developments in 1995

A notable event in Poland's energy sector during 1995 was the initiation of a new gas pipeline through Poland that would permit an expansion of Russian gas exports to Germany and Western Europe. A wholesale electric power market was introduced in early 1995, with new tariff structures providing a positive financial incentive to many of the thirty two distribution companies that are now joint stock companies. Otherwise, progress in restructuring the power sector was slow. Debate over consolidation of large generating companies held back reform to develop a more competitive system and most generating plants have yet to convert to become joint stock companies. Progress was more substantial at the municipal level, as several Combined Heat and Power (CHP) plants moved to privatize and modernize. The government began exploring the prospects for privatization of some generation and distribution companies. The Cabinet finally approved and submitted to Parliament a draft electricity law that would establish a separate regulatory organization from the Ministry of Industry.

## USAID Energy Assistance Program

USAID activities in 1995 continued at all levels of the decentralized power/heat systems. The Polish Power Grid Company (PPGC) remained the focus of the USAID utility partnership program involving Commonwealth Edison of Chicago. The CEO of Commonwealth Edison, James Conner, personally visited Warsaw for the Utility Partnership Program Annual Meeting. USAID work helped to prepare the PPGC for a World Bank transmission loan that was finally approved in late 1995.

The advisory restructuring team at the Ministry of Industry was reconstituted under the new Bechtel contract and planning began for a major cooperative effort with the World Bank to support the development of the proposed regulatory office under the energy law submitted to Parliament. An assistance program to support privatization of the distribution companies was also prepared under the Bechtel contract.

Model master plans for generation and distribution were completed in 1995 with Rybnik (Bechtel) and Torun (Electrotek). A pilot program on demand-side management at the Gliwice distribution company was carried out, with equipment procurement approved for selected industrial installations. The World Bank is now considering lending for a distribution/demand-side management project.

The Rybnik activity was followed up by a Utility Consultancy Program grant to New York State Gas and Electric, which teamed with Westinghouse and several other companies. The program focuses on financial management, environmental modernization, and prepared for privatization.

The major USAID-funded DOE-US industry collaborative effort in Krakow to reduce polluting emissions from small coal fired boilers and home furnaces continued with joint venture partners beginning implementation of about $28 million in projects for boiler replacement, fuel upgrading, combustion efficiency improvement, and end-use efficiency in buildings.

The year saw continuing delays in the Skawina desulphurization unit start-up.

# Czech Republic



## Developments in 1995

The year began with the Czech Parliament's enactment of an energy law, the second country in Central Europe after Hungary to do so. Economic regulatory responsibility for gas and electricity was assigned to the Ministry of Industry and Trade (MoIT), although the Ministry of Finance continued to retain ultimate authority over setting tariffs. (The MoIT was given responsibility to recommend tariffs to the Mo Finance.)

The second wave of privatization was scheduled for 1995 and included the twelve electric and gas distribution companies. The companies prepared strategic plans but tenders were never issued. The lack of clarity in the regulatory framework and continuing debate over the separation of generation from transmission led to a postponement of decisions on distribution company privatization.

Work continued on the completion of the Temelin 1000 MW nuclear power plant which will include modern instrumentation and control, and fuel fabrication technology from Westinghouse. A draft nuclear law was submitted to the Parliament.

## USAID Energy Assistance Program

The year saw the successful conclusion of the USAID-funded utility partnership arrangement between Houston Power and Light and CEZ (the Czech Electricity Generation and Transmission Company). The partnership made a significant contribution to CEZ's privatization and the raising of international capital for CEZ's ambitious investment program. CEZ continues to participate in the regional activities of the USEA Utility Partnership Program.

USAID responded to a request from the Ministry of Industry for expert assistance in developing regulatory guidelines for the electricity and gas system. Support was initiated under a contract with Bechtel International Consulting and a high-level inter-ministry meeting in November helped clarify a number of key issues. A follow-on assistance program was started involving legal and tariff advice to the new regulators.

As a complement to USAID's privatization assistance to the distribution companies by Crimson Capital, Central Maine Power and Electrotek expanded their work with the Prague Distribution Company under a Utility Consultancy Program grant. Training in business and financial/tariff issues is planned to help all six electric distribution companies to prepare for privatization. Financial and tariff training is to be done with the Ministry under Bechtel, with assistance from CMP/Electrotek and coordinated with distribution companies.

The USAID/DOE district heating and efficiency investment program in Plzen and other Czech cities came to a successful conclusion with a public meeting and presentation of investment plans. A regional net working activity among Krakow, Ostrava, and several other Czech cities continued under DOE management.

The US Nuclear Regulatory Commission, with USAID support, continued its training program in regulatory safety review methodology with officials from the Czech Nuclear Safety Office. This training is helping them prepare for the licensing of the Temelin Nuclear Plant.

# Slovak Republic



## Developments in 1995

The year in the Slovak Republic was a disappointing one for reforms in the energy sector. The Slovak government halted the power sector privatization program, continued to resist recommendations for tariff rationalization, and withdrew interest in a loan from the European Bank for Reconstruction and Development (EBRD) for the completion and safety upgrade of the Mohovce Nuclear Power Plant. The alternative to the EBRD/Electricity de France package appears to be a contract with Skoda Praha, which claims it can meet Western safety standards with control systems from Siemens AG and Framatom.

## USAID Energy Assistance Program

Prior to the decision on the EBRD loan, USAID completed its work with the World Bank on a national tariff study. The analysis concluded that tariffs should be increased by approximately 16% in real terms to reach long-run marginal costs, particularly in the residential and commercial sectors.

The long-standing utility partnership between Southern Electric and the Slovenske Electrarne (Slovak Power Enterprise) came to a close with final programs in least-cost planning and investment.

Work was conducted with USAID funds by the DOE in the Town of Handlova to help the town modernize its district heating system. The city leaders expressed their gratitude for the program, stating it provided "help which is visable and touchable" by improving comfort and reducing health problems while lowering energy use. The project also made occupants more willing to purchase the improved apartments, which helped the city's privatization strategy. The city is eager to share its sucess with other cities through a T.V. program.

With USAID funding, both the US Nuclear Regulatory Commission and the US Department of Energy continued their assistance to the Bohunice power plant on safety codes and assessments of safety risks. Support was provided to the training center at Travna which conducts both national and regional nuclear training.

# Hungary



## Developments in 1995

Following from the passage of the Electricity and Gas Law in 1994, the Hungarian Government made a major decision in 1995 to privatize the electric power and gas industry as well as MOL, the national oil company. On July 31, 1995, a public tender round for strategic and new financial investors was issued for:

(1) a package of shares equaling 24% of the share capital of MVMRt(the power generation and transmission company);

(2) a package of shares equaling 19 to 40 percent of the share capital of six power distributing companies;

(3) a package of shares equaling 34% to 49.7% of the share capital of seven power generating companies.

Proposals were quickly reviewed in early December and the Government announced successful bidders for six distribution companies and two generation plants. While US companies participated, none of them were among the winners.

## USAID Energy Assistance Program

With the establishment of the Hungarian Energy Office, USAID provided, through contracts with Hagler-Bailly and Bechtel, fast-track assistance to help with the development of the grid code, licensing, guidelines for tendering for new capacity, a public participation decree, and a new tariff basis for a privatized system. The substantial progress made through this work appears to have given both the government and investors confidence that an acceptable regulatory system would be in place in the near future. The next set of tenders will be issued in early 1996.

Meanwhile, New England Electric System has continued its utility partnership arrangement with MVMRt, with a major emphasis on human resources development. Due to contractual problems and the privatization changes in Hungary, the two utility consultancy grants to New England Electric Systems for work with specific distribution and generation companies did not proceed.

The development of private energy service companies continued in Hungary under the Hagler-Bailly contract. Training for emerging private energy service companies (ESCOs) was completed and audits and equipment have been provided for pilot projects in nine industrial enterprises with projected annual energy savings of about $1 million at equipment costs of $457,762. In a collaborative effort with the Alliance to Save Energy and the Association of Energy Engineers (AEE), US companies linked with a Hungarian energy association (MESZ). A local AEE chapter was also established.

The US Nuclear Regulatory Commission, under USAID funding, completed its work with the Hungarian Atomic Energy Commission on safety codes and risk assessments.

# Romania & Macedonia



## ROMANIA

### Developments in 1995

The direction of energy reform in Romania during 1995 was hopeful but also uncertain. Initiation of activities under the $370 million World Bank Petroleum Rehabilitation Loan, which USAID had a major role in designing, began with the creation of the Romanian Agency for Mineral Resources (NAMR) to oversee exploration, production, concessions, and oil and gas transportation. But a new petroleum law to spur exploration, particularly by small foreign oil companies, remained stalled in Parliament for most of the year. Finally, the parliament passed the law at year end.

The future of the large petroleum refining and downstream sector was clouded by the efforts of some interests to establish a national oil company. The Ministry of Industry did not take a clear position opposing this development, which seemed to contradict the petroleum policy statement formulated as part of the World Bank's loan.

In the power sector, the Government negotiated thermal rehabilitation loans with both the World Bank and the European Bank for Reconstruction and Development (EBRD) that contained important pricing, financial and institutional reform provisions. (The World Bank loan became effective in January 1996.) The Cernovoda nuclear power plant commissioning was further postponed but is expected in 1996.

### USAID Energy Assistance Program

USAID continued to be active in the petroleum, power and energy efficiency areas. A long-term advisor was provided to support the NAMR activities, with particular focus on development of regulatory guidelines. Other support was provided for the geological information systems linking NAMR with production companies.

USAID supported a Bechtel/Arthur Andersen design team to help the World Bank develop a new refinery rationalization and privatization project. A comprehensive report on the industry will be reviewed in early 1996.

Within the context of moving toward a more open and competitive power system, USAID, at the request of the Romanian Government and the World Bank/European Bank for Reconstruction and Development, initiated a power sector institutional options study that will be used by an Inter-Ministerial Committee under the Prime Minister's office to decide on the future structure of the industry. Boston Edison completed its agreed program with RENEL, the electric power company, including activities in demand-side management and financial systems under the USEA Utility Partnership Program. Mississippi Power was selected to replace Boston Edison as the U.S. partner for RENEL.

Hagler-Bailly continued to work with Romanian private energy service companies to develop markets, demonstrate US technologies in eight industry plants resulting in annual savings of over half a million dollars at equipment costs of $406,000, and establish energy efficiency associations. As in Hungary and Bulgaria, local chapters of the Association of Energy Engineers were established.

## MACEDONIA

### Developments in 1995

For much of the year, Macedonia continued to be seriously affected by the war in Bosnia and trade problems with Greece. These problems were easing toward the end of 1995. The Macedonian Government has shown considerable interest in private and foreign investment and in strengthening energy ties with Bulgaria and Albania. Energy tariffs increased during the year.

### USAID Energy Assistance Program

The only major USAID energy activity in 1995 was a review of institutional restructuring options for the electric power sector, carried out by Bechtel. The work, which has been coordinated with the EBRD and recently with the World Bank, will be followed by an energy strategy/least-cost investment analysis. Changes in management at the utility compnay may create a more favroable environment for reform. Full participation in the USEA utility Partnership Program is planned.

# Bulgaria



## Developments in 1995

The pace of reform in Bulgaria remained slow and planned investments and international financial support were delayed further.

Inflation eroded the real price of electricity and put Bulgaria out of compliance with World Bank and European Bank agreements. The Bulgarian Government adjusted tariffs in September to 2.6 cents per kwh, but further increases were clearly needed to mobilize resources and keep up with inflation.

G-7 discussions with Bulgaria focused on the need for an acceptable energy investment strategy and on the embrittlement problem, which is a nuclear safety issue, at the Kuzloduy Nuclear Unit #1. Despite Western concerns, Bulgaria reopened Unit #1 in November but subsequently agreed to a embrittlement testing program to be financed by the Western Europeans.

The year ended with the Bulgarian Council of Ministers approving an energy strategy and calling for a detailed investment plan and power sector restructuring program, which included operating the Kozloduy reactors 1-4 beyond the closure dates agreed with the EBRD.

## USAID Energy Assistance Program

During 1995, USAID energy assistance focussed on (1) tariff reform and (2) electricity utility investment planning and management. Under the new Bechtel contract, an activity was initiated with a Committee under Deputy Prime Minister.

The goals of the activity include:

(1) To investigate existing cost and pricing of electricity and district heating.

(2) To estimate the level and structure of tariffs based on long-run marginal cost (LRMC);

(3) To estimate the financial requirements of the National Electricity Company and the Sofia District Heating Company;

(4) To make recommendations on tariffs taking into consideration: LRMC, financial requirements of the entities responsible for production and delivery of energy; impact on energy-intensive industries; and protection of economically disadvantaged groups; and

(5) To support institutional development through a training program.

Utility commercialization and management improvement activities were carried out with the National Electricity Company (NEK) under the Utility Partnership Program with the US Energy Association and the Utility Consultancy Program with Central Maine Power. These programs focused on financial and investment planning and management as well as environmental and demand-side management technologies and economics.

Under the energy efficiency contract with Hagler-Bailly, private energy service companies are being coached in developing energy efficiency businesses and markets. In 1995, audits and equipment installation were carried out in ten enterprises. Projected annual savings are estimated at $720,000 at equipment costs of $524,320. In addition, the energy efficiency companies have established a coal chapter of the U.S. Association of Energy Engineers.

USAID is a contributor to the Nuclear Safety Account at the European Bank for Reconstruction and Development (EBRD). The Kuzloduy Units 1-4 upgrading program continued during 1995 but procurement delays resulted in slippages in schedules. DOE and NRC carried out nuclear safety programs in 1995 with USAID funds DOE completed delivery of fire fighting equipment for the Kuzloduy nuclear power plant.

The NRC also carried out training for the Bulgarian Nuclear Safety Committee, but progress in developing their capabilities was slow

# RUSSIA



## Developments in 1995

The energy sector remained by far the single largest source of hard currency for the Russian economy -- mainly through oil and natural gas exports. The rate of decline in oil output slowed in 1995 - the production of 301 million tons was only three percent below previous years, albeit substantially below the output of 522 million tons in 1989. While the natural gas industry has not suffered any significant decline since 1991, coal output has dropped by about one quarter of the level in 1991.

The year saw mixed progress in energy sector reform in Russia. The hopeful movement to enact the petroleum production-sharing agreement (PSA) legislation ended in its passage and signature by President Yeltsin. While the law is seen as a step forward in establishing the necessary legal framework for major Western oil company investments, it contained a number of ambiguities and uncertainties of concern to foreign industry. 1996 is expected to see efforts within the Russian government to correct these deficiencies, either through regulatory measures or amendments.

The major Komi oil spill pointed to the need for investment in existing transport systems. Once the Russian Government decided to request external support, the World Bank and European Bank for Reconstruction and Development (EBRD) moved quickly to provide technical and emergency support.

The government made an important decision to move ahead with bold structural reform in the coal sector, which has been a heavy drain on the Russian budget, consuming almost one percent of GDP in subsidies in 1994.

The debate over the future of the power system intensified in 1995. A decision to create an independent regulatory body (Federal Energy Commission) gave greater prominence to the need for a professional utility rate setting regime.

The World Bank became more active in the power, gas distribution and coal sectors during 1995 with major new loans of up to $2 billion under preparation. An agreement to address oil transport strategy and regulatory issues was reached with Transneft and the Ministry of Fuels and Energy. The government also agreed to liberalize oil exports by eliminating the quota system.

## USAID Energy Assistance Program

The main focus of the program continued to be on the structural reform of the electric power system and the improvement of the safety of Russia's nuclear power plants. The results of the Joint Electric Power Alternatives Study (JEPAS), sponsored by USAID and the first comprehensive analysis of future investment requirements of the Russian power sector, were presented to Vice President Gore and Prime Minister Chernomyrdin in June. Follow-up activities are planned and underway which will implement some elements of the strategy outlined in the study. Procurements under the Energy and Environmental Commodity Import Program are beginning to be awarded to US companies that will introduce for the first time into Russia energy efficiency and environmental monitoring and control technologies and open opportunities for US companies.

USAID is helping the World Bank prepare its first power sector loan to Russia ($500 Million) for the building of a gas-fired combined cycle power plant in the North Caucasus region. Additional support to activities in energy efficiency, demand-side management and transmission and dispatch modernization is planned. JEPAS clearly pointed out the importance of institutional and regulatory reform to mobilizing the capital for power investments. In parallel to the JEPAS, USAID-financed work by Hagler Bailly resulted in a proposal for reform of the power sector. The proposal developed by RAO EES Rossi and USAID-funded consultants provided a basis for debate over how and at what rate to move toward a competitive power market. This report is currently under intense discussion within the Russian government. USAID is developing, in conjunction with the World Bank and other donors, a follow-on support program that will work with both local energos and regional regulatory commissions as well as the federal institutions and RAO EES Rossi. To reinforce the importance of decentralization and local issues, the U.S. Energy Association (USEA) Energy Industry Partnership Program established sister utility relationships between Illinois Power and Nizhninovgorod, and between Entergy and Lenenergo. Specialized courses for utility executives were conducted by the Institute for International Education.

# RUSSIA



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## USAID Energy Assistance Program

The USEA cooperative program also cost-shared six gas partnerships that have strengthened the capacity of Russian gas distribution companies and supported the finalization gas and energy efficiency loan from the World Bank.

A collaborative effort with the oil industry sponsored a Duma delegation visit to the United States prior to a crucial PSA vote, building upon an Energy and Law Conference cosponsored with the US Department of Energy. The US-Russian Oil and Gas Technology Center in Tyumen, a Gore-Chernomyrdin Commission initiative funded by USAID and executed by the US Department of Energy, was dedicated in 1995 and efforts are underway to enlist US and Russian industry support for its technical programs and sustained operations.

The collaborative USAID program with Partners in Economic Reform (PIER) - a UMW and National Coal Association coalition - continued its support for coal sector restructuring and mine safety in Russia. A grant amendment with PIER will continue to support resident advisors. At the same time, USAID agreed to provide support for the World Bank's efforts to develop a $500 million loan to support a major coal sector restructuring program, including closing of non-profitable mines, adequate severance of benefits to miners and divestiture of social assets. PIER had previously completed a series of studies on the coal industry for the World Bank and will be involved in preparing the new program.

Assistance was also provided in the design of the first ever environmental clean up project for the Komi oil spill for which both the World Bank and EBRD provided emergency loans.

Nuclear safety programs in Russia took on special importance in light of the G-7 agreement with President Yeltsin in Halifax to convene a Nuclear Summit in 1996 in Russia. After considerable effort, the Nuclear Safety Account approved two projects to increase the safety of Russian reactors at Kola, Novovoronezh, and St. Petersburg. Together with this agreement, efforts are underway to increase the role and capacity of GAN, the Russian regulatory agency, in safety assessments and licensing. The U.S. Nuclear Regulatory Commission continued its bilateral activities with GAN in a number of areas related to improving independent safety reviews. With USAID funds, DOE developed a new program in Maintenance Training for RBMKs as well as progressed in programs to develop Symptom-Based Emergency Operating Instructions, install simulators at most nuclear plants, and improve fire safety and the overall safety culture.

# Ukraine



## Developments in 1995

The year was an historic one for the Ukraine as President Kuchma's government began to implement agreements with the West on an overall economic reform program and received over $2 billion in credits. Energy, and particularly the reform of the power sector, were high on the agenda and implementation of a comprehensive power sector restructuring plan began in early-1995 with substantial progress made by year-end in establishing distinct generation, distribution, and transmission companies together with an Energomarket and the National Electric Regulatory Commission.

A major highlight of the year was the signing, after over a year of discussions, of a memorandum of understanding between the G-7 and the Ukrainian Government on the basic elements of an agreement for the closure of the Chernobyl Nuclear Power Plant, the site of the worst civilian nuclear by the year 2000. The agreement contained key steps in power sector restructuring, energy sector investment, nuclear safety and social cost mitigation that would be needed to realize the target closure.

With Ukraine's $7 billion energy import bill, the development of indigenous supplies and improved efficiency of energy became areas for policy attention. Prospects for increases of 20 % in domestic gas production were reported by year end. The government began working with the World Bank on a coal restructuring program as coal production continued to drop and coal had to be imported. A new Committee on Energy Efficiency was established. Progress toward establishing a viable legal framework for oil and gas exploration remained a major impediment to investment.

## USAID Energy Assistance Program

USAID's program continued to play a significant role in power sector restructuring, energy efficiency, nuclear safety, and indigenous energy development.

In 1994, USAID agreed to participate in a multidonor effort, coordinated by the World Bank, to support the implementation of the power sector reform program approved by President Kuchma. In 1995, USAID mobilized advisors to assist the four newly created thermal generating companies, twelve of the new twenty-seven local electricity and heat supply companies, and the National Electric Regulatory Commission (NERC). Progress was made during the year in corporatizing the companies and setting up procurement and financial systems in preparation for the competitive wholesale power market. Work with the NERC included assistance in drafting licenses and procedures for issuance of licenses as well as in developing various guidelines for the operation of the Commission.

These efforts were supplemented by the following USAID funded activities:

(1) a utility partnership program involving Pennsylvania Power and Light (with Kievenergo) and Ottertail Power (with Crimeaenergo);

(2) in-country training on management, economic, financial and institutional aspects of a competitive power market for General Directors and senior staff of the newly corporatized companies; and

(3) a DOE-managed program to analyze upgrading options for the Lugansk coal-fired power plant which is under consideration for a loan by the World Bank, as well as testing of Ukrainian coals for combustion and washability characterization.

In the energy efficiency area, USAID-supported programs continued working with utilities, heat plants, and industrial consumers to demonstrate and introduce better efficiency practices and technologies. A national assessment was completed on electricity demand-side management potential in preparation for a demonstration program at two local electricity companies. The pilot energy efficiency program at Kiev No. 5 Power/Heat plant was followed by a program to provide resins and instrumentation and controls to improve performance and operations. During 1995, energy efficiency audits and training were completed at seven power/heat plants. Procurement of additional efficiency equipment is underway and shipment and installation is expected in 1996. A low-cost, no-cost program is also being carried out at five target industrial plants. Audits have been completed and procurement of low-cost equipment is underway. USAID has also provided funding for the Kiev Energy Efficiency Center (ARENA-ECO) which during 1995 developed a proposal with DOE for a major energy efficiency investment program at a number of large industries. These potential projects are being

# Ukraine



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## USAID Energy Assistance Program

considered by the European Bank for Reconstruction and Development for a new energy efficiency loan planned for Ukraine.

Building on the work by the World Bank (USAID-funded) on oil and gas legislation, USAID provided additional funding to the Department of Energy for a conference in Houston to bring together Ukraine oil officials and US oil companies. This conference will be held in 1996. USAID is also supporting enhancement of Ukrainian capabilities in geological data assessment and processing for oil and gas by the U.S. Geological Survey.

As in Russia, the Partners in Economic Reform (PIER - a coalition of US mine workers and coal industry) continued to work with the Ukrainian coal sector to improve productivity and mine worker safety. Political changes in the Ministry of Coal in late 1995 suggest increased attention to reform and USAID is working with the World Bank and other donors to develop a new technical assistance program to support a market-oriented restructuring of the sector.

USAID-funded efforts by the US Department of Energy and the Nuclear Regulatory Commission to promote nuclear safety in the Ukraine concentrated on safety of the VVER-1000s prior to 1995. Areas of focus were: (a) a training center; (b) fire safety; and (c) emergency operating instructions.

In 1995, emphasis was placed, in the context of the G-7 discussions on Chernobyl closure, on short-term safety measures at Chernobyl Unit #3 and participating in the development of an International Center at Slavutich, near Chernobyl, which will play an important role in the decommissioning of the plant. President Clinton pledged support for this Center during his April trip to Kiev.

The US Nuclear Regulatory Commission assistance programs were affected in 1995 by the departure of the head of the Ukrainian regulatory agency and the transfer of the regulatory responsibility to the Ministry of Environment. Assistance continued, however, in licensing and safety analysis, development of inspection procedures, joint inspections, enforcement regulations, waste and spent fuel management, and fire protection regulation.

To honor the US commitment at the Naples Economic Summit of 1994, USAID completed a $10 million grant in 1995 to the Nuclear Safety Account (NSA) managed by the European Bank for Reconstruction and Development. A total funding of $20 million will be achieved in 1996. The NSA is expected to develop projects for upgrading Chernobyl Unit #3 for safe operation until 2000 as well as for construction of someof the facilities needed to decommission the Chernobyl power plant.

# Armenia



## Developments in 1995

In 1995 Armenia continued to face a severe energy rationing situation due to the conflict with Azerbaijan, the uncertainties of gas supplies through Georgia and poor relations with Turkey. The shortage of gas caused power and heat problems - power being available for two hours per day on average.

The situation was further exacerbated in mid-1995 when the 224 MW Gyumush hydro station was put out of commission by flooding and mud slides. Given the crises during the last three years, the Government, with help from Russia, moved to open one unit at the Medzamor Nuclear Power Plant. Start-up tests began in late 1995. The World Bank has required the completion of a power investment plan assuming the closure of Medzamor as a condition for its planned Power Rehabilitation Project. Other problems include: poor collection of tariffs, i.e. in late 1995 only 15-20% of electricity consumed was being paid for; old and depleted capital plant that needs replacement and maintenance; and the inefficient management of utilities.

## USAID Energy Assistance Program

USAID continued its energy program in 1995 as the largest bilateral donor in the energy sector. This effort included both emergency petroleum fuel supplies; equipment for power/heat system operation and technical assistance in restructuring, commercialization and energy efficiency. By year-end, about $6.3 million (90 % of budget) had been provided in commodities and services to help rehabilitate the district heating system, power plants, and power distribution system. Turbine/ generators have also been provided to replace old units at a number of mini-hydro installations. Equipment and technical assistance was provided to enable Armenian miners to mine 25,000 tons of indigenous coal.

A major effort during 1995 was placed on working with the Ministry of Energy on an energy law and plans for a regulatory entity. A draft was completed and is under review by the government. At the end of the year, the government moved to break up Armenergo into generation, transmission, and distribution entities to create a more efficient and transparent power system. A full restructuring plan is under development with USAID advisors and in close collaboration with the World Bank's Power Rehabilitation Loan and Structural Adjustment Credit.

The successful buildings weatherization program was completed in August 1995 -- over 25 facilities were included, with special emphasis on hospitals, orphanages, schools and elderly housing. Local private companies and NGOs were trained in these skills and may form the basis for planned new activities related to development of broader private energy service companies. The industrial energy efficiency demonstration program began delivering energy saving equipment in November 1995 for seven selected industrial facilities.

A major program for the future was designed during FY95 which will be implemented in 1996. Key areas include:

(1) continued support for restructuring;

(2) upgrading of Yerevan electric distribution systems;

(3) enhanced natural gas storage and restart of gas distribution systems;

(4) emergency restoration of Gyumush hydro station together with the World Bank;

(5) coal and oil/gas resources assessment

(6) environmental review of the energy sector; and

(7) private power investment promotion.

In addition, USAID is planning on procuring and delivering $15 million of natural gas to Armenia during 1996.

# Georgia



## Developments in 1995

The energy situation in Georgia continued to be difficult in 1995, especially when a major fire at a substation of the Gardabani power plant knocked out several hundred megawatts of capacity.

Both the World Bank and the European Bank for Reconstruction and Development (EBRD) continued preparations for power sector loans, including discussions on structural and institutional reforms.

A major prospective development for Georgia was the decision in late 1995 by the Azerbaijan International Operating Company (AIOC) to adopt multiple routes for the export of early Caspian oil. The upgrading of the existing pipeline system through Georgia was one of the principal options and the AIOC had concluded a number of agreements with Georgia on the terms of this transport arrangement. The Georgian Government at year-end established the Georgian International Oil Company (GIOC) to oversee the pipeline and related oil industry aspects of the project.

## USAID Energy Assistance Program

The USAID program, as in Armenia, consisted of a mix of emergency fuel and commodity assistance and an effort to promote economic restructuring of the energy industry.

In 1995, about $2.5 million in commodities and technical assistance was provided to rehabilitate the district heating and power facilities.

USAID was significantly involved in the preparation of new World Bank loan. This work involved both technical design and assistance on restructuring and the development of a legal and regulatory framework. The technical work with the World Bank involved rehabilitation analyses for the Gardabani unit, hydro sites, and electricity dispatch system improvement. USAID support for the water system upgrade at Gardabani was part of an $18.1 million EBRD loan approved in 1995. A new EBRD loan will focus on district heating improvement and geothermal system development for district heating. USAID work on preparing this loan will begin in early 1996.

A formal utility partnership was developed in 1995 between the Tennessee Valley Authority (TVA) and Georgia Power and Light of the US and Sakenergo. Senior management exchanges and training is being provided in economic and financial management, power plant operations and management, energy efficiency and power dispatch operations.

USAID is also working with the Georgians to develop a technical assistance program to support the oil pipeline project. Initial assistance through USDOE helped to clarify key legal and contractual issues, and additional USAID assistance facilitated closing the deal between AIOC and the GOG as well as creating the GIOC. Plans for 1996 include assistance for developing a commercial and regulatory framework for the power and oil sectors as well as technical assistance for encouraging privatization.

# Kazakstan



## Developments in 1995

Although Kazakstan made progress on its macroeconomic stabilization program with the International Monetary Fund, the economy continued to face problems due to continued drop in the GDP and budget and balance of payments difficulties. Price liberalization was expanded in 1995 and included the termination of the regulation of profit margins for producers of crude oil and oil products on April 1, 1995.

Electric and gas utility subsidies were reduced and by year-end restructuring of the electric power sector and the development of a number of power projects involving foreign partners had begun.

The Chevron consortium continued to invest in oil exploration and development and several other exploration and production agreements were concluded. Kazakstan did not come closer to its goal of an oil pipeline to transport oil from the giant Tengiz field in the Caspian Sea as no resolution to the problems besetting the Caspian Pipeline Consortium (CPC) with Russia and Oman had been reached. Some movement was noted towards the end of the year.

## USAID Energy Assistance Program

USAID activities during the year focused on initiating power restructuring work and completing a number of energy efficiency and environmental improvement tasks.

Initial assistance in power sector restructuring by Hagler Bailly had produced a draft electricity law. Initially, the previous Minister for Energy did not like the basic recommendations with respect to decentralization or the creation of an independent regulatory agency. Based on discussions with Ukrainian officials during a study tour organized by USAID and other factors, the Ministry changed its position towards the end of the year and began to implement a reform program to separate electricity generation and distribution and open up access to private and independent power investors. The industry partnership between Kazakenergo and Cincinnati Gas and Electric (CG&E) completed its planned activities.

A National Energy Savings Plan was prepared jointly with GOGAZ by USAID contractor Burns and Roe. The plan was adopted and identified cost-effective energy saving policies and technologies in the industrial sector. A separate program to define power plant efficiency improvement opportunities in the Pavlodar region was completed in August 1995 and is being shared with the World Bank, Asian Development Bank, and the European Bank for Reconstruction and Development. A coal-cleaning project investigation, completed in October 1995, identified cost-effective means of reducing the ash content of coal shipped to Kazak power plants.

Partners In Economic Reform (PIER - a coalition of US coal industry and mine workers) activities concluded in August 1995 and the program was judged to have successfully introduced planning and safety concepts at the Karaganda and Ekibastuz coal mines and land reclamation methods at Ekibastuz.

In 1996, Burns and Roe will begin work on defining ways of improving the environmental performance of power plants throughout Kazakstan.

Intensive training for a number of mid-level energy managers was carried out during 1995 by the Institute for International Education in Kazakstan.

# Kyrgyz Republic



## Developments in 1995

The Kyrgyz Republic possesses abundant low-cost hydropower resources, but is highly dependent on imported coal, petroleum products and natural gas. In 1995, the Kyrgyz government took measures to improve the financial position of the power and gas utilities by raising prices and beginning the process of restructuring. The domestic private sector has reportedly shown interest in investment in energy and has begun to participate in trading and distribution of petroleum products and coal, coal mining, and bottled LPG.

## USAID Energy Assistance Program

USAID continued its close cooperation with the World Bank and Asian Development Bank on preparation of a $65 million loan for rehablitiating power plants, district heating systems, and the power transmission system. Technical analyses as well as work on the institutional restructuring of the power sector was undertaken and largely completed. An electricity law was redrafted and dialogue on the creation of an independent regulatory body led to a high-level decision to proceed with such an institution in late 1995.

Burns and Roe will begin work in 1996 on studying the potential for power exports from Kyrgyz hydro facialities. In addition, Hagler Bailly will begin working on contracting for cross-border sales and regional electricity trading. A utility partnership continued between Washington Water and Power and KyrgyzGosenergo-holding. Areas of focus in the management exchange program include: capital financing, customer information systems, energy efficiency, market-based pricing, investment project planning, strategic planning, regulatory affairs, accounting and reporting, and contracting.

Intensive training for a number of mid-level energy managers was carried out during 1995 by the Institute for International Education in Kyrgyzstan.

Finally, the coal resource assessment task being carried out by the US Geological Service was completed in Summer 1995 and the draft final report is now being distributed.

**APPENDIX**
**LIST OF IMPLEMENTING CAN COOPERATING ORGANIZATIONS**
**REGIONAL ENERGY EFFICIENCY PROJECT - CENTRAL AND EASTERN EUROPE**
**ENERGY EFFICIENCY AND MARKET REFORM PROJECT (EEMR) - NIS**

| Organization | Countries of Activity | Primary Activity |
|---|---|---|
| Arthur Andersen | Lithuania, Romania | Accounting |
| Asian Development Bank (ADB) | Kyrgyzstan | Energy project finance |
| Atlantic Council | Russia, Ukraine | Policy analysis |
| Bechtel Corporation | Bulgaria, Czech Republic, Hungary, Lithuania, Macedonia, Poland, Romania | Policy reform and restructuring |
| Booz, Allen and Hamilton | Armenia, Russia, Ukraine | Energy program review |
| Burns and Roe Consortium | Armenia, Georgia, Kazakhstan, Kyrgyzstan, Russia, Ukraine | Energy engineering |
| Elektrotek Consortium | Lithuania, Poland | Energy Efficiency and least-cost planning |
| European Bank for Reconstruction and Development (EBRD) | Bulgaria, Georgia, Macedonia, Romania, Russia, Ukraine, Armenia<br>- - - - - - - - - - - - - -<br>Bulgaria, Ukraine, Lithuania, Russia, Ukraine | Energy project finance<br>- - - - - - - - - - - - - -<br>Nuclear safety (NSA) |
| Hagler Bailly Consulting | Armenia, Bulgaria, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Poland, Macedonia, Romania, Russia, Ukraine | Policy and structural reform in energy sector |
| Institute for International Education (IIE) | Armenia, Kazakhstan, Kyrgyzstan, Russia, Ukraine | Senior-level energy training for a market environment |
| International Development Energy Associates, Inc. (IDEA) | Armenia, Georgia, Kazakhstan, Russia, Ukraine | USAID energy program technical management support (NIS) |
| Partners in Economic Reform (PIER) | Kazakhstan, Russia, Ukraine | Coal sector mining safety, health, and industry restructuring |
| Resource Management Associates (RMA) | Armenia, Russia, Ukraine | Energy efficiency |
| United State Energy Association (USEA) | Armenia, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Ukraine | Utility-to-utility partnerships |
| US Geological Survey | Armenia, Kyrgyzstan, Russia | Fossil fuel resource assessments, data gathering and processing |
| US Department of Energy | Bulgaria, Czech Republic, Georgia, Hungary, Lithuania, Poland, Russia, Slovak Republic, Ukraine | Nuclear safety, energy efficiency, and investment promotion |

| Organization | Countries of Activity | Primary Activity |
|---|---|---|
| US Minerals Management Service | Russia, Hungary | Oil, gas and mineral leasing policies and procedures, including environment oversight |
| US Nuclear Regulatory Commission | Bulgaria, Czech Republic, Hungary, Lithuania, Russia, Slovak Republic, Ukraine | Nuclear safety and regulation |
| World Bank | Armenia, Georgia, Kyrgyzstan, Lithuania, Macedonia, Poland, Romania, Russia, Slovak Republic, Ukraine, Kazakstan | Energy sector finance |